

Attorney Docket No.: 1464-PCT-US-00

In re Application of Henry Daniel et al.

Serial No.: 09/807,723

Filed: April 18, 2001

For: GENETIC ENGINEERING OF PLANT CELLS TO PROVIDE ENHANCED  
EXPRESSION OF MULTIPLE FOREIGN GENES IN TRANSGENIC PLASTIDS  
UTILITIZING A SINGLE TRANSFORMATION EVENT

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Transmitted herewith is an Amendment in the above-identified application.

- Small entity status of this application under 37 CFR §1.9 and §1.27 has been established by a verified statement previously submitted.
- A verified statement to establish small entity status under 37 CFR §1.9 and §1.27 is enclosed.
- X No additional fee is required.

The fee has been calculated as shown below:

(Col. 1)

(Col. 2) (Col. 3)

SMALL ENTITY

OTHER THAN  
SMALL ENTITY

	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NO. PRE- VIOUSLY PAID FOR	PRESENT EXTRA
TOTAL	* 88	-	** 91=	
INDEP.	* 2	-	** 2=	
___ First presentation of multiple dependent claim				

RATE	ADD'L FEE
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x42=	\$
+140=	\$

OR

RATE	ADD'L FEE
x18=	\$
x84=	\$
+280=	\$

TOTAL ADDITIONAL FEE \$0 OR

\$ \_\_\_\_\_

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x Any filing fees under 37 CFR §1.16 for the presentation of extra claims.

x Any patent application processing fees under 37 CFR §1.17 with the exception of the Issue Fee which we intend to pay by check.

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Additional Instructions/Comments: Amy, here is a copy  
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In the meantime, if you have any  
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Thanks, James

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Art Unit : 1638  
Examiner : Anne R. Kubelik  
Serial No. : 09/807,723  
Filed : April 18, 2001  
Inventors : Henry Daniell  
Title : GENETIC ENGINEERING OF  
: PLANT CELLS TO PROVIDE  
: ENHANCED EXPRESSION OF  
: MULTIPLE FOREIGN GENES  
: IN TRANSGENIC PLASTIDS  
: UTILITIZING A SINGLE  
: TRANSFORMATION EVENT



35811

PATENT TRADEMARK OFFICE

Docket: 1464-PCT-US-00

Confirmation No.: 4031

Dated: July 7, 2003

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Sir:

Certificate of Mailing Under 37 CFR 1.8

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Claim of Extension of Time for Response, in duplicate  
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Copy of article by Mayfield et al (2003)  
Substitute Figs. 1-18B  
Declaration of Henry Daniell with Exhibit A

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Name of Applicant, Assignee, Applicant's Attorney  
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By: \_\_\_\_\_

Date: \_\_\_\_\_

7/7/03

**REVISED INTERIM WRITTEN DESCRIPTION GUIDELINES**  
**TRAINING MATERIALS**

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**Example 18: Process claim where the novelty is in the method steps.**

**Specification:** The specification teaches a method for producing proteins using mitochondria from the fungus *Neurospora crassa*. In the method, mitochondria are isolated from this fungus and transformed with a mitochondrial expression vector which comprises a nucleic acid encoding a protein of interest. The protein is subsequently expressed, the mitochondria is lysed, and the protein is isolated. The specification exemplifies the expression of  $\beta$ -galactosidase using the claimed method using a cytochrome oxidase promoter.

**Claim:**

1. A method of producing a protein of interest comprising;
  - obtaining *Neurospora crassa* mitochondria,
  - transforming said mitochondria with a expression vector comprising a nucleic acid that encodes said protein of interest,
  - expressing said protein in said mitochondria, and
  - recovering said protein of interest.

**Analysis:**

A review of the specification reveals that *Neurospora crassa* mitochondrial gene expression is essential to the function/operation of the claimed invention. A particular nucleic acid is not essential to the claimed invention.

A search of the prior art reveals that the claimed method of expression in *Neurospora crassa* is novel and unobvious.

The claim is drawn to a genus, i.e., any of a variety of methods that can be used for expressing protein in the mitochondria.

There is actual reduction to practice of a single embodiment, i.e., the expression of  $\beta$ -galactosidase.

The art indicates that there is no substantial variation within the genus because there are a limited number of ways to practice the process steps of the claimed invention.

The single embodiment is representative of the genus based on the disclosure of *Neurospora crassa* mitochondria as a gene expression system, considered along with the level of skill and knowledge in the gene expression art. One of skill in the art would recognize that applicant was in possession of all of the various expression methods necessary to practice the claimed invention.

**Conclusion:**

The claimed invention is adequately described.